

**REMARKS**

Reconsideration of the patent application in view of the preceding amendments and the following remarks is respectfully requested.

**Amendments to the Drawings**

The applicants have amendment the drawings to cure minor informalities. No new matter has been added to the amended drawings. The Applicants respectfully request approval of the proposed amended drawings.

**Claim of Priority**

In the office action dated 7/9/2003, the Examiner noted and acknowledged the Applicants claim of priority. The Applicants have amendment the written specification to include the claim of priority.

**Objection to the Claims**

In the office action dated 7/9/2003, the Examiner objected to the original claims. Specifically, the Examiner cited minor informalities within the originally filed claims. The Applicants have amendment the claims to cure the cited informalities. Withdrawal of the objection is respectfully requested.

## Rejection of the Claims Under 35 U.S.C. § 102(b) and 103(a)

In the office action dated 7/9/2003, the Examiner rejected claims 1,3,5,9, and 11 under 35 U.S.C. § 102(b). The Examiner stated that the claimed invention was anticipated by a paper entitled “Circuit multi-fault diagnosis and prediction error estimation using a committee of Bayesian neural networks” by Brant, et al. (hereinafter referred to as the Brant, et al reference). The remaining claims were rejected as unpatentable over the Brant, et al reference in view of a paper entitled “A Bayesian approach to variable screening for modeling the IC fabrication process” by Niu, et al. (hereinafter referred to as the Niu, et al reference). The Applicants respectfully traverse.

Before directly addressing the Examiner’s rejections, a brief review of the present invention is desirable. The present invention is in the field of electrical characteristic ‘extraction.’ Extraction is a step performed in the creation of integrated circuits wherein an integrated circuit design is examined by a computer program in order to ‘extract’ the electrical characteristics of the integrated circuit design. Specifically, extraction is performed by examining the physical measurements of circuit components and then estimating the electrical characteristics of the circuit components using sophisticated computer models or very large look-up tables.

The present invention introduces a system of creating sophisticated machine learning models for extracting at least one electrical characteristic from an integrated circuit design. The system of the present invention operates by first identifying a set of physical measurements of integrated circuit components that define said extraction sub-problem. Next, a set of training sets that use those sets of physical

measurements are submitted to a physics-based model to determine an output. Then, those physical measurements and the associated output are given to a Bayesian inference system to create a machine learning model.

The Brant, et al reference discloses a circuit multi-fault diagnosis and prediction error estimation using a committee of Bayesian neural networks. However, the system of the Brant, et al reference does not perform extraction to output a set of electrical characteristics nor does it use physical measurements as input. Instead, the system of the Brant, et al reference begins with a set of electrical characteristics as a set of input parameters and then outputs an estimate of electrical performance. Specifically, the estimation system of the Brant, et al reference outputs electrical performance values such as voltage levels.

Since the Brant, et al reference does not disclose a system that constructs models for extraction that use physical measurements as input and electrical characteristics as output, the Brant, et al reference does not anticipate the present invention. Similarly, a combination of the Brant, et al reference with other references such as the Niu, et al reference does not produce an electrical extraction system. Thus, the claims are allowable over the cited art.

CONCLUSION

In view of the foregoing, it is submitted that the claims are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

Respectfully submitted,

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